PO N°:	Doc Ref. :
Requisition n°:	FLS N°:
Equipment tag : 140-PU-2020B	Item n°:

Diesel Engine Data Sheet
140-PU-2020B

Rev	Date DD/MMM/YYYY	STATUS	Written by	Checked by	Approved by
A	26/AUG/2013	FIRST EMISSION	CUMMINS	L.LORY	L.CERBELLE

CUMMINS INDIA LIMITED KOTHRUD PUNE- 411038. ENGINE PERFORMANCE CURVE	Basic Engine Model 6 CTAA-8.3	Curve Number FR 91567		G-DRIVE C 8.3
	Engine Family D41	CPL 40839	Date 09-Jul-08	1

Displacement : **8.3** litre (**505** in^3)	Bore : **114** mm (**4.49** in.) Stroke : **135** mm (**5.32** in.)
No. of Cylinders : **6**	Aspiration : **Turbocharged and Charge Air Cooled**

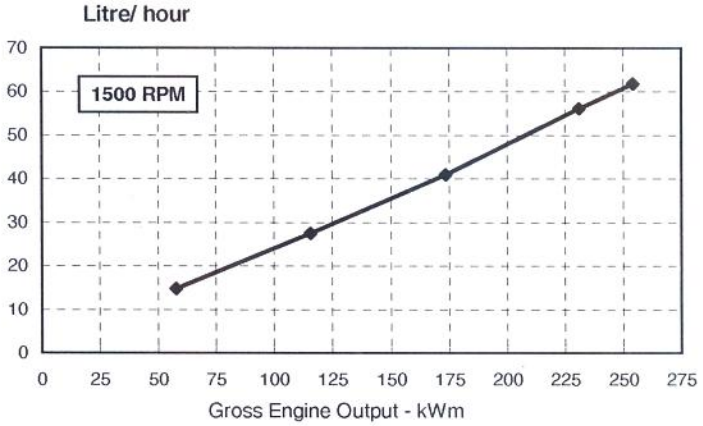
Engine Speed	Standby Power		Prime Power		Continuous Power	
RPM	kWm	BHP	kWm	BHP	kWm	BHP
1500	254	341	231	310	x	x
1800	--	--	--	--	--	--

Emissions Certification:

This engine complies with certain emissions requirements established by Central Pollution Control Board (India).
See Exhaust Emissions Data Sheet for conformance specifics.

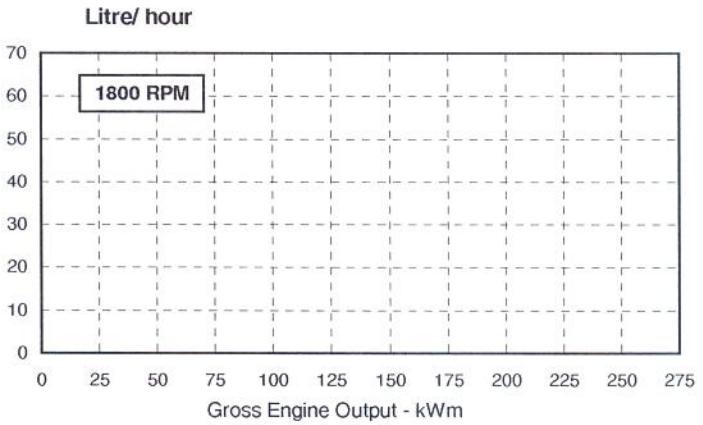
Engine Performance Data @ 1500 RPM

OUTPUT POWER			FUEL CONSUMPTION		
%	kWm	BHP	g/ kW-h	lb/ BHP-h	Litre/ hour
STANDBY POWER					
110	254	341	206.7	0.3400	62
PRIME POWER					
100	231	310	206.4	0.3395	56
75	173	232	200.5	0.3298	41
50	116	155	201.7	0.3317	27
25	58	77	217.6	0.3579	15
CONTINUOUS POWER					
x	x	x	x	x	x



Engine Performance Data @ 1800 RPM

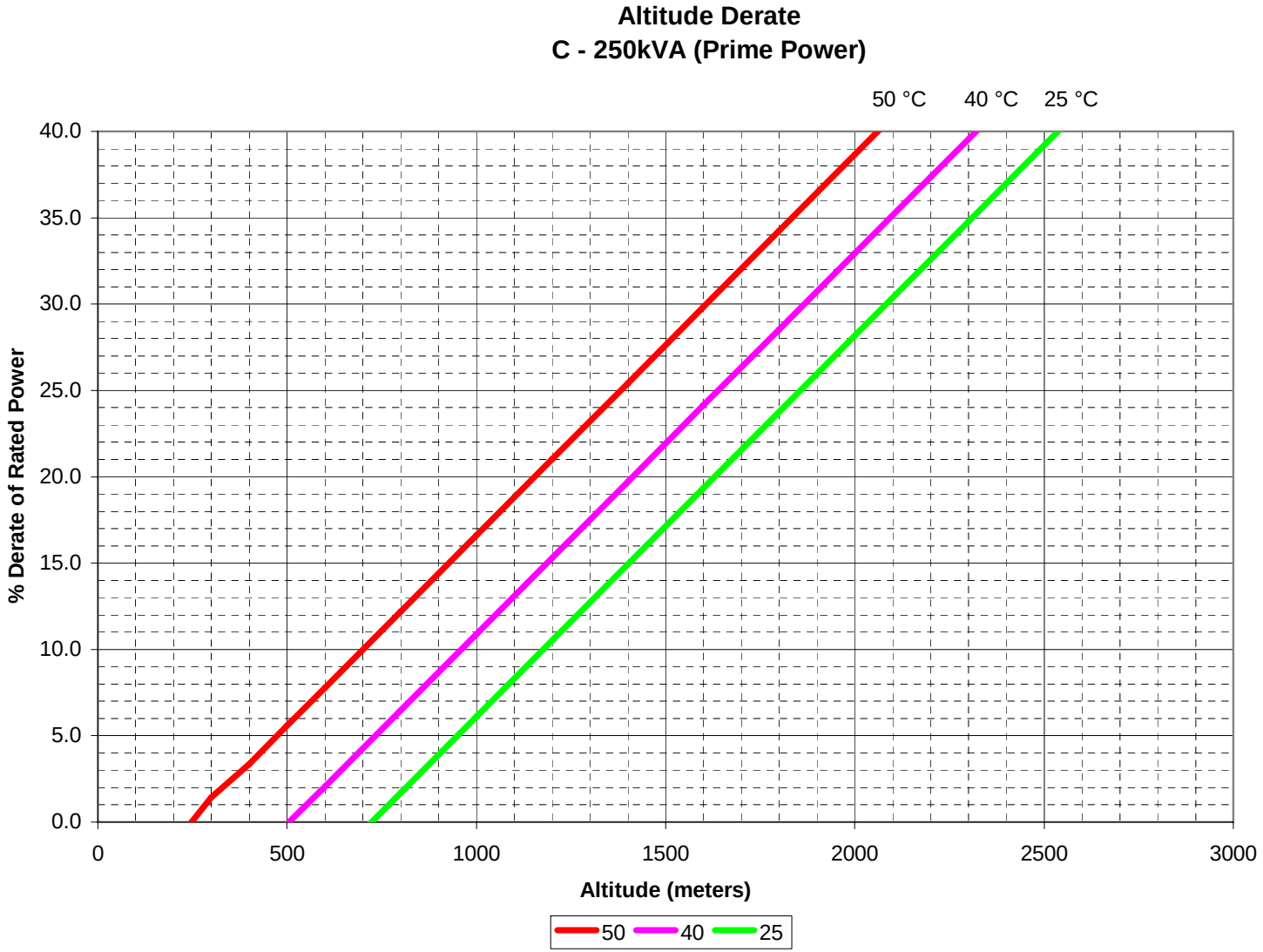
OUTPUT POWER			FUEL CONSUMPTION		
%	kWm	BHP	g/ kW-h	lb/ BHP-h	Litre/ hour
STANDBY POWER					
100					
PRIME POWER					
100					
75					
50					
25					
CONTINUOUS POWER					
100					

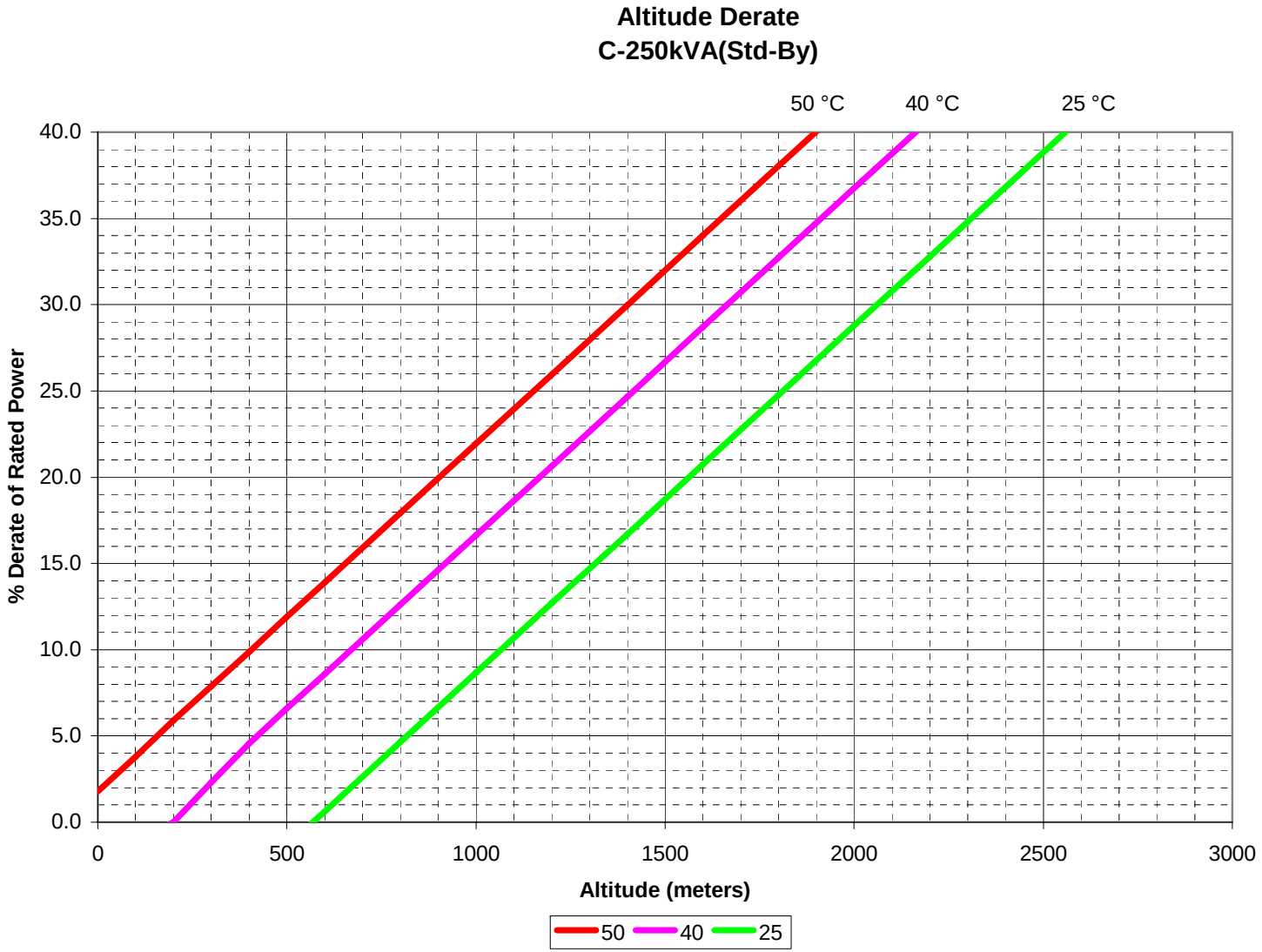


CONVERSIONS: (Litres = U.S. Gal x 3.785) (kWm = BHP x 0.746) (U.S. Gal = Litres x 0.2642) BHP = kWm x 1.34)

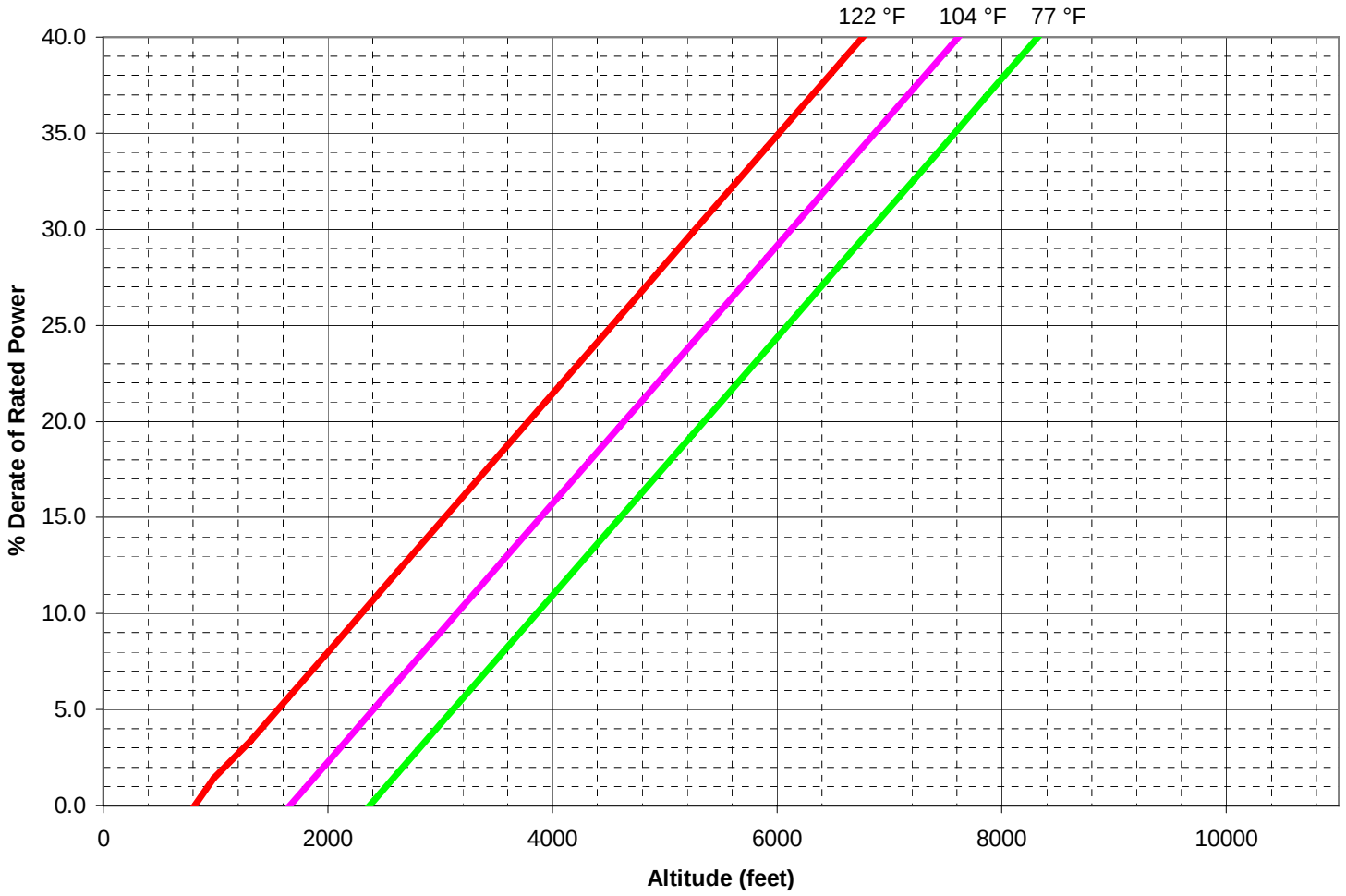
Data shown above represents gross engine performance capabilities obtained and corrected in accordance with ISO-3046 conditions of 100 kPA (29.53 in Hg) barometric pressure [110m (361 ft) altitude, 25° C (77° F) air inlet temperature, and relative humidity of 30% with No. 2 diesel or a fuel corresponding to ASTM D2.
See reverse side for application rating guidelines.
The fuel consumption data is based on No. 2 diesel fuel weight at 0.85 kg/ litre (7.1 lbs/ U.S. gal).
Power output curves are based on the engine operating with fuel system, water pump and lubricating oil pump; not included are battery charging alternator, fan, optional equipment and driven components.

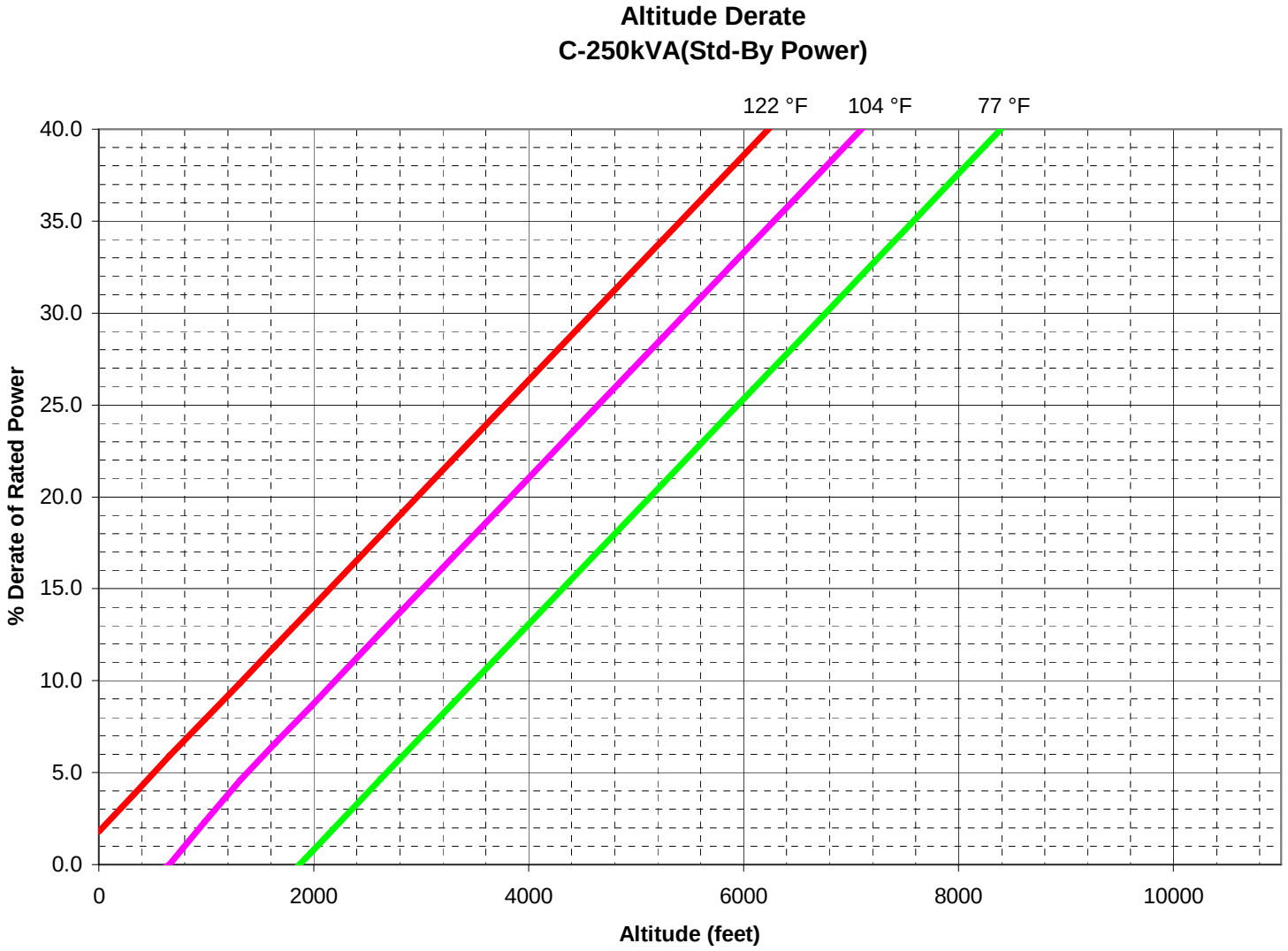
TECHNICAL DATA DEPT. **CERTIFIED WITHIN 5%** **VP R&D**


Altitude Derate
C - 250kVA (Prime Power)
50 °C
40 °C
25 °C
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
% Derate of Rated Power
0
500
1000
1500
2000
2500
3000
Altitude (meters)
50
40
25


Altitude Derate
C-250kVA(Std-By)
50 °C
40 °C
25 °C
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
% Derate of Rated Power
0
500
1000
1500
2000
2500
3000
Altitude (meters)
50
40
25

Altitude Derate
C-250kVA(Prime Power)




Altitude Derate
C-250kVA(Std-By Power)
122 °F
104 °F
77 °F
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
% Derate of Rated Power
0
2000
4000
6000
8000
10000
Altitude (feet)

Cummins India Ltd.

Engine Data Sheet

G-DRIVE
C 8.3
2

ENGINE MODEL : 6CTAA 8.3-G4 **CONFIGURATION NUMBER :** D413058GX03

DATA SHEET : **FR 91567**
DATE : 09-Jul-08
PERFORMANCE CURVE : **FR 91567**

INSTALLATION DIAGRAM
Fan to Flywheel : 4963710

CPL NUMBER
Engine Critical Parts List : 40839

GENERAL ENGINE DATA

Type	4-Cycle; In-line; 6-Cylinder Diesel	
Aspiration	Turbocharged and Charge Air Cooled	
Bore x Stroke - in x in (mm x mm)	4.49 x 5.32 (114 x 135)	
Displacement - in^3 (litre)	505 (8.3)	
Compression Ratio	16.8 : 1	
Dry Weight		
Fan to Flywheel Engine -lb (kg)	1505	(684)
Fan to Flywheel with CE 90001 (Radiator and Charge Air Cooler Mounted) -lb (kg)	2070	(939)
Wet Weight		
Fan to Flywheel Engine -lb (kg)	1573	(715)
Fan to Flywheel with CE 90001(Radiator and Charge Air Cooler Mounted) -lb (kg)	2209	(1002)
Moment of Inertia of Rotating Components		
With FW 9868 Flywheel -$lb_m.\ ft^2$ ($kg.m^2$)	27.76	(1.17)
Center of Gravity from Rear Face of Flywheel Housing -in (mm)	21.3	(541)
Center of Gravity Above Crankshaft Centerline -in (mm)	6.4	(163)
Maximum Static Loading at Rear Main Bearing -lb (kg)	NA	(NA)

ENGINE MOUNTING

Maximum Bending Moment at Rear Face of Block -lb.ft (N.m)	1000	(1356)

EXHAUST SYSTEM

Maximum Back Pressure -in Hg (mm Hg)	3	(76.2)

AIR INDUCTION SYSTEM

Maximum Intake Air Restriction		
With Dirty Filter Element -in H_2O (mm H_2O)	15	(381)
With Normal Duty Air Cleaner and Clean Filter Element -in H_2O (mm H_2O)	10	(254)
With Heavy Duty Air Cleaner and Clean Filter Element -in H_2O (mm H_2O)	10	(254)

COOLING SYSTEM

Coolant Capacity - Engine Only -US gal (litre)	3.25	(12.3)
- With CE 90001 Radiator -US gal (litre)	14.34	(54.3)
Maximum Coolant Friction Head External to Engine - 1800 rpm psi (kPa)	NA	(NA)
- 1500 rpm psi (kPa)	4	(28)
Maximum Static Head of Coolant Above Engine Crank Centerline - ft (m)	60	(18.3)
Standard Thermostat (Modulating) Range - °F (°C)	180 - 203	(82 - 95)
Minimum Pressure Cap - psi (kPa)	10	(69)
Maximum Top Tank Temperature for Standby / Prime Power °F (°C)	220 / 212	(104 / 100)
Minimum Raw Water Flow @ 90o F to HX ---- Heat Exchanger - US gpm (litre / min)	NA	(NA)
Maximum Raw Water Inlet Pressure at HX ---- Heat Exchanger - psi (kPa)	NA	(NA)

LUBRICATION SYSTEM

Oil Pressure @ Idle Speed - psi (kPa)	15	(103)
@ Governed Speed - psi (kPa)	40 - 60	(276 -414)
Maximum Oil Temperature °F (°C)	250	(121)
Oil Capacity with OP 9511 Oil Pan : High - Low - US gal (litre)	7.13 - 5.8	(27 - 22)
Total System Capacity (Including Combo Filter) - US gal (litre)	8.45	(32)
Angularity of OP 9511 Oil Pan -- Front Down		35°
-- Front Up		35°
-- Side to Side		35°

G-DRIVE
C 8.3
3

FUEL SYSTEM

Type of Injection System	MOTORPAL Mi Direct Injection	
Maximum Restriction at Lift Pump - in Hg (mm Hg)	4	(102)
Maximum Allowable Head on Injector Return Line (Consisting of Friction Head and Static Head) - in Hg (mm Hg)	10	(254)
Maximum Fuel Flow to Injection Pump - US gph (litre / hr)	55	(208)

ELECTRICAL SYSTEM

Cranking Motor (Heavy Duty, Positive Engagement) - volt	12	24
Battery Charging System, Negative Ground - ampere	63	40
Maximum Allowable Resistance of Cranking Circuit - ohm	0.00075	0.002
Minimum Recommended Battery Capacity [Cold Soak @ 10 °F (-12 °C) and Above] - 0 °F CCA	950	475

COLD START CAPABILITY

Minimum Ambient Temperature for Aided (with Coolant Heater) Cold Start within 10 seconds .. °F (°C)	TBD	TBD
Minimum Ambient Temperature for Unaided Cold Start °F (°C)	TBD	TBD

PERFORMANCE DATA

All data is based on: Engine operating with fuel system, water pump, lubricating oil pump, air cleaner and exhaust silencer; not included are battery charging alternator, fan, and optional driven components.
Engine operating with fuel corresponding to grade No. 20D per ASTM D975.
ISO 3046, Part1, Standard Reference Conditions of:

Barometric Press 100 kPa (29.53 in Hg) — Air Temperature : 25 °C (77 °F)
Altitude : 110 m (361 ft) — Relative Humidity : 30%

Steady State Stability Band at Any Constant Load - %	+/- 0.50	
Maximum Temperature Rise Between Engine Air Inlet & Intake Manifold °F (°C)	45	(25)
Maximum Air Pressure Drop from Turbo Air Outlet to Intake Manifold - @ 1500 RPM .. - in Hg (mm Hg)	2.5	(63.5)
- @ 1800 RPM .. - in Hg (mm Hg)	N/A	

	STANDBY				PRIME POWER			
	60 Hz		50 Hz		60 Hz		50 Hz	
Governed Engine Speed - rpm			1500				1500	
Engine Idle Speed - rpm			900				900	
Gross Engine Power Output - BHP (kWm)			341	(254)			310	(231)
Break Mean Effective Pressure - psi (kPa)			356	(2457)			324	(2233)
Piston Speed - ft / min (m /s)			1330	(6.8)			1330	(6.8)
Frictional Horsepower - hp (kWm)			24	(18)			24	(18)
Engine Water Flow at Stated Friction Head External to Engine:								
1 psi Friction Head - US gpm (litre / s)			53	(3.3)			53	(3.3)
Maximum Friction Head - US gpm (litre / s)			45	(2.8)			45	(2.8)
Engine Data with Dry Type Exhaust Manifold								
Intake Air Flow - cfm (litre /s)			647	(305)			605	(285)
Exhaust Gas Temperature - °F (°C)			1017	(547)			973	(523)
Exhaust Gas Flow - cfm (litre /s)			1700	(802)			1578	(745)
Air to Fuel Ratio - air : fuel			23.6 : 1				24.9 : 1	
Radiated Heat to Ambient - BTU / min (kWm)			1194	(21)			967	(17)
Heat Rejection to Coolant - BTU / min (kWm)			5971	(105)			5630	(99)
Heat Rejection to Exhaust - BTU / min (kWm)			12227	(215)			10805	(190)
Heat Rejection to Aftercooler - BTU / min (kWm)			1820	(32)			1649	(29)
Turbocharger Compressor Outlet Pressure.. In Hg (mm Hg)			76.7	(1948)			68.3	(1735)
Turbocharger Compressor Outlet Temperature .. - oF (oC)			418	(214)			387	(197)

N.A. - Data is Not Available
N/A - Not Applicable to this Engine
TBD - To Be Determined

CUMMINS INDIA LTD. Kothrud, Pune - 411038

ENGINE MODEL : 6CTAA 8.3-G4
DATA SHEET : FR 91567
DATE : 9-Jul-08
CURVE NO. : FR 91567

	CUMMINS INDIA LIMITED KOTHRUD PUNE- 411038. **EXHAUST EMISSION DATA SHEET**	Basic Engine Model **6 CTAA-8.3-G4**	**Curve Number** New		*G-DRIVE* **C 8.3** **4**
		Engine Family D41	**CPL** 40839	**Date** 09-Jul-08	

Displacement : **8.3** litre (**505** in^3)	Bore : **114** mm (**4.49** in.) Stroke : **135** mm (**5.32** in.)
No. of Cylinders : **6**	Aspiration : **Turbocharged and Charge Air Cooled**

Engine Speed	**Standby Power**		**Prime Power**		**Continuous Power**	
RPM	**kWm**	**BHP**	**kWm**	**BHP**	**kWm**	**BHP**
1500	**254**	**341**	**231**	**310**	**x**	**x**
1800	**--**	**--**	**--**	**--**	**--**	**--**

CPCB (India), July '04 (1500 RPM Only)

This engine, tested in accordance with ISO 8178 D2, is in compliance with the CPCB (India) Genset Standard

	Component	Limit (g/kW-h)	Observed (g/kW-h)
PM	(Particulate Matter)	0.30	0.228
Nox	(Oxides of Nitrogen)	9.20	5.78
CO	(Carbon Monoxide)	3.50	0.81
HC	(Hydrocarbons)	1.30	0.42
% Opacity (%)		25.0	-
Coefficient of Absorption (m^{-1})		0.70 -	0.27

Emissions data was taken from a single engine under the test conditions shown above. This data is subject to instrumentation, measurement, and engine-to-engine variability. Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may result in elevated emission levels. Specifications May Change Without Notice.